

User's Guide and Warranty Information
PurePower 100/110/120 Volt models

PUREPOWER™



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The PurePower Audio Power Supply

The PurePower Audio Power Supply (APS) provides pure regenerated power for your sensitive home theater and audio equipment. This is accomplished through our double conversion technology. We convert the incoming AC power to produce a clean DC supply, then recreate a new AC wave form with proper voltage and frequency from the DC. We make sure that your system gets the power it was designed for and your amplifiers get the current they need for top performance.

The APS also protects from power disturbances including power sags, power surges, over-voltages, line noise, undervoltages, frequency variations, switching transients and harmonic distortion. Power disturbances have the potential to damage sensitive hardware causing expensive repairs with either catastrophic failures or degradation over time through chronic overheating. With the APS you can safely eliminate the effects of power disturbances and guard the integrity of your equipment.

In addition to pure power, the APS provides you with something unique in audio power regenerators - protection against power outage. The APS maintains full wattage output even when the power fails completely.

Providing outstanding performance and reliability, the PurePower's unique benefits include the following:

- True double conversion AC regeneration design with pure sine wave output. The APS filters and regulates incoming AC power, creates a DC source, then regenerates new pure AC and provides monitored, consistent power to your components.
- The APS improves amplifier performance by ensuring full wattage and improves signal component output quality by removing noise and distortion.
- The PurePower APS design allows any of our high quality, full contact receptacles to supply digital, analog or amplifier components.
- Hours of extended viewing or listening time with optional APS PowerPack Modules during outages.
- Built in line surge protection guards against spikes and surges on coax, RJ11 and RJ45 lines.
- USB communication port allows the APS to be integrated into whole home systems.

Safety Warnings

Read the following precautions before you install the APS.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS.

This manual contains important instructions that you should follow during installation and maintenance of the APS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

DANGER

This APS contains LETHAL VOLTAGES. All repairs and service should be performed by AUTHORIZED SERVICE PERSONNEL ONLY. There are NO USER SERVICEABLE PARTS inside the APS.

WARNING

This APS contains its own energy source. The output receptacles may carry live voltage even when the APS is not plugged in.

Under normal operating conditions, do not remove or unplug the input cord when the APS is turned on. This removes the safety ground from the APS and the equipment connected to the APS.

To reduce the risk of fire or electric shock, install this APS in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 32°C (90°F). Do not operate near water or excessive humidity (95% max).

To comply with international standards and wiring regulations, the total equipment connected to the output of this APS must not have an earth leakage current greater than 3.5 milliamperes.

CAUTION

Batteries can present a risk of electrical shock or burn from high short-circuit current. Observe proper precautions. Servicing should be performed by qualified service personnel knowledgeable of batteries and required precautions.

Proper disposal of batteries is required. Refer to your local codes for disposal requirements. Never dispose of batteries in a fire. Batteries may explode when exposed to flame.

Inspecting the Equipment

Before installation, please check to ensure that your PurePower APS package is complete and undamaged. If any deficiencies are discovered, please contact your PurePower Dealer.

Package Contents

The PurePower package includes:

- PurePower APS

- Quick Start Guide

- Input line cord with an IEC female connector to fit the PurePower input connector and a Nema 5-15P (700 and 1050) or Nema 6-20P (2000) plug.

- Rack mount bracket kit

- This manual

Shipping damage

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage:

- 1) File with the carrier within 15 days of receipt of the equipment
- 2) Send a copy of the damage claim within 15 days to your PurePower APS dealer.

APS Preparation

The APS is designed for flexible configurations and can be rack mounted or placed on a shelf or as a standalone cabinet.

Standalone / shelf component

When you position the APS horizontally on a shelf or in a non-rack style AV equipment stand or enclosure, ensure there is sufficient clearance for unimpeded airflow through the grilles at front and rear of the unit.



Rack-Mount

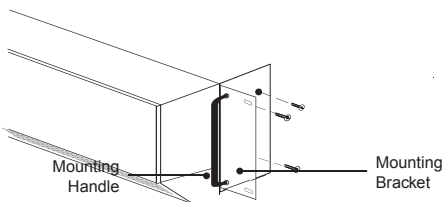
The APS can be installed in 19 or 23-inch racks and needs only 2U of rack space for 700 and 1050 models, 3U for the 2000. Mounting rails or a rack shelf are recommended.

Place the APS on a flat, stable surface with the front of the APS facing toward you.

Attach the mounting handles to the bracket with the screws provided in the accessory kit.

If installing optional PowerPacks, install rack handles for each unit.

NOTE The PowerPacks must be installed BELOW the APS.



Installation

Connections

The PurePower APS 700 and 1050 provide 8 Hubbell NEMA 5-15 output receptacles that may be used interchangeably to power signal components, video components or amplifiers. The 2000 provides 10 Hubbell 5-15 receptacles.



Surge protection connectors

The PurePower unit provides built in surge protection to isolate system components such as cable television, satellite, ethernet and telephone lines from your AV system.

The surge protection is not provided specifically to protect satellite receivers, computer network and telephone equipment from damage from surges -- although it does that task admirably. The main purpose is to prevent satellite or cable TV coax cables, telephone and ethernet lines from providing a path that would allow surges or spikes to damage your AV system that is otherwise isolated from surges arising in the AC power lines by the PurePower APS. It is intended to prevent a back door attack that would circumvent the PurePower protection.

All surge modules provide instantaneous response using advanced silicon avalanche diodes with the ability to safely dissipate surge currents of up to 1kA and auto reset in readiness for any subsequent surge or transient voltage.

	Connector	Voltage	Let through	Bandwidth
Coax	Type F (2)	30	45	2 GHzT
Telephone	RJ11 4 wire	190	<298	na
Network	RJ45	5	10	155MHz

USB and DB9

USB and DB9 serial connectors are available to allow communication of power conditions to an attached computer system. Contact PurePower for system requirements and software compatibility.

Installing Optional Power Packs

Power Pack Modules must be installed before powering the APS. In a rack mount installation, place the Power Packs below the PurePower unit. The optional 36 volt PowerPack for the PurePower 1050 is attached to the PurePower main unit with an umbilical cord that fits a PowerPack Connector that is only built into PurePower units ordered with this feature. The connector is a factory installed option.

If your PurePower 1050 is not equipped with a Power Pack connector and you wish to add one or more Power Packs, the unit can be factory retrofitted. Please contact PurePower service for details.

All PurePower 2000 models incorporate a PowerPack connector that mates only with the 72 Volt PowerPack designed for the 2000.

For both 1050 and 2000 models, up to 3 PowerPacks may be daisy chained together to provide extended operating time.

CAUTION: A small amount of arcing may occur when connecting a PowerPack Module to the APS. This is normal and will not harm you. Insert the connection cable into the APS battery connector quickly and firmly.

- Plug the first PowerPack cable into the battery connector on the APS rear panel
- If additional PowerPacks are to be installed, plug the cable of the second cabinet into the battery connector on the previous Powerpack

NOTE: The batteries charge to 80% capacity in approximately 2 hours. However, it is recommended that the batteries charge for 24 hours after installation or long-term storage. The battery charging process will occur during normal operation and will not interfere with the supply of power from the APS.



Activating your PurePower APS

The following steps explain how to install and start the APS.

Activating the APS

- Examine the rear panel label to ensure the voltage specifications of the unit and the power source are correctly matched.
- Plug the components to be supplied into the APS output receptacles. The PurePower APS design allows any outlet to supply digital, analog or power amplifier components.
- Ensure that each component is switched off.
- DO NOT operate electric space heaters or other items with heater elements with the APS.
- On the 2000 model only, ensure the input circuit breaker is switched to "on"
- Plug the APS power cord into a utility outlet. The APS conducts a self-test. You may hear a slight click and the fans will rotate momentarily. When the self-test is complete, the APS is in standby mode.
- Start the APS by pressing the On/Off button until the blue LED is illuminated..

When the blue "Output" LED is illuminated, power is being supplied to the PurePower output receptacles. The APS will operate in Bypass mode for a few seconds, then turn on its inverter output - indicated by the LCD Display. The PurePower APS is now in Normal mode and ready to supply power to your system. Turn on the components, ensuring that the total load does not exceed the capacity of the PurePower APS.

After initial start up it is best to keep the APS on at all times to ensure its batteries are fully charged. Battery charging will continue with the unit turned Off so long as it is plugged in to an AC supply.

If the LCD lights fail to illuminate after plugging the unit in and pressing the On/Off button, check the line cord, ensure AC power is available at the receptacle and check the line fuse located in the back of the unit before notifying PurePower service.

If the amber "Fault" LED is illuminated there may be a problem requiring service of the APS. Please call our support line for instructions.

In no circumstances should the lid of the PurePower unit be removed. There are no user serviceable components inside and there may be lethal voltages present even if the unit is unplugged from the wall.

Turning the PurePower On

After the APS is connected to a power outlet, it conducts a self-test and enters Standby mode, during which it will operate its batteries charging circuit, but all output receptacles are off.



To turn on the APS output power, press the On/Off button on the front panel for 2 to 3 seconds until the blue "Output" LED illuminates. The LCD display will indicate "bypass" for a few seconds and then indicate "Line Normal" mode and display the output voltage.

Starting the PurePower APS on battery

To turn on the APS when utility power is unavailable, press and hold the On/Off button until the blue "Output" LED illuminates. The APS supplies power to your equipment and goes into Battery Mode. When the APS starts on battery, it does not conduct a self-test to conserve battery power. It will automatically return to Line Normal when utility power becomes available.

Turning the PurePower APS off

To turn off the APS press and hold the On/Off button until the blue "Output" LED turns off. Power to the APS output receptacles will be off. If you do not unplug the APS, it remains in Standby mode and the batteries will remain fully charged.

Initiating the Self-Test

Press and hold the On/Off button for one second while the unit is in "Line Normal" mode to initiate the self-test. During the 10-second test, the unit will switch to battery operation and the display will read "testing" .

NOTE: The batteries must be charged and the APS must be in normal mode to perform the self-test.

Operation

The PurePower unit indicates the APS status through the LCD Display. Pressing the "Display" button on the control panel will cycle through the 5 information displays.

The display presents data on 2 lines. The top line indicates the current operating mode:

- Line Normal
- Bypass
- Battery Backup
- Testing
- Short Circuit
- Over Load

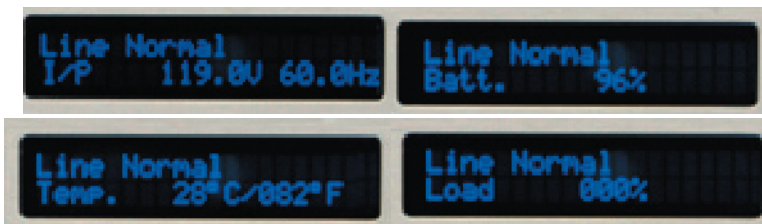
The information, presented on the bottom line of the display are:

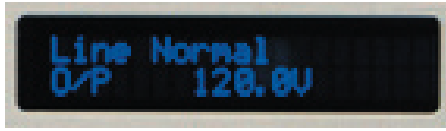
- Output Voltage & Frequency
- Input voltage & Frequency
- Temperature (C/F)
- Battery Level
- Load Level



Line Normal

During Normal mode, the display indicates the percentage of APS load capacity being used by your system. The APS monitors and provides power to your system and charges the batteries as needed. You may press the "Display" button to read the input and output voltages, temperature, battery condition and load level.





Bypass Mode

In the event of an extended APS overload or internal failure, the APS transfers your system to utility power. Battery mode will not be available, however the utility power continues to be passively filtered by the APS. The LCD display will indicate "Bypass" when bypass mode is engaged. The APS switches to Bypass mode when:

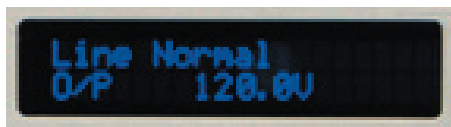
- When The APS is turned on it operates from Bypass for 10 to 20 seconds
- The APS has an overtemperature condition.
- The APS has an overloaded condition of 101 to 110% for 2 minutes.
- The APS has an overloaded condition of 111 to 150% for up to 30 seconds.
- The APS detects a fault in the battery or APS electronics.



Battery Backup Mode

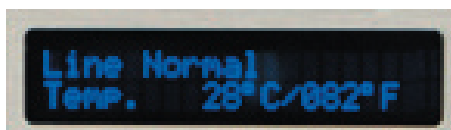
When the APS is operating during a power outage, the "Battery" screen is presented on the LCD display and the "Utility Power" LED on the control panel will not be illuminated. The LCD panel displays the approximate percentage of battery capacity remaining. When the utility power returns, the APS switches back to Normal mode operation and the batteries recharge.

If battery power is exhausted the APS will shut down. The low battery warnings are approximate, and the actual time to shutdown may vary. When utility power is restored after an APS shut down, the APS automatically restarts.



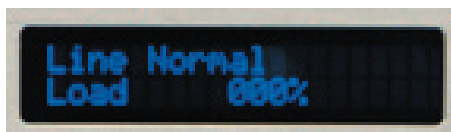
Test Mode

When the APS is operating in Normal Mode, pressing the On/Off button momentarily causes the APS to enter test mode for 10 seconds. The APS will then operate on battery and complete a self test.



Short Circuit

The Short Circuit mode indicates a problem with either an external circuit plugged in to the APS or a possible internal problem. Unplug each load in turn. If the problem continues after all loads have been removed the message may indicate a problem with the APS itself. Please notify PurePower Service for further instructions.



Over Load

When the APS detects an overload condition its behavior varies with the amount and duration of the overload. Short overloads of 1% to 10% can be sustained for several minutes, overloads up to 50% can be supported for up to 30 seconds. Overloads above those levels or durations will result in the APS switching to bypass and supplying power from the utility feed until the overload condition is cleared. The APS will only switch to bypass if it determines that the utility supply is acceptable. Otherwise it will initiate a shutdown.

PurePower Maintenance

PurePower APS

For the best preventive maintenance, keep the area around the APS clean and dust-free. If the atmosphere is very dusty, clean the outside of the system with a vacuum cleaner. For full battery life, keep the APS at an ambient temperature of 21° C (72° F).

Storing the APS and Batteries

If you store the APS for a long period, recharge the batteries every 12 months by plugging the APS into a power outlet. The batteries charge to 80% capacity in approximately 2 hours. However, it is recommended that the batteries charge for 24 hours after long-term storage.

When to Replace Batteries

When the battery load indicator remains low (below 50%) even after a prolonged charge cycle, the batteries may need replacing. Conduct a self-test by holding the On/Off button momentarily while the unit is in "Line Normal" mode. The unit will switch to battery mode for 10 seconds to test the batteries. If the test indicates a battery fault, contact PurePower or your PurePower dealer to order new batteries. The average battery life is approximately 5-7 years.

The PurePower APS will still provide full power conditioning including output voltage correction and surge protection when the batteries need replacement, but it will not be able to continue to operate during a power outage.

You may perform the battery replacement yourself by ordering a PurePower battery replacement kit. Full instructions are included with the kit and are also available on our web site.



Battery compartment access

Removing the Phillips screws (size 01) on the top front of the APS allows the front assembly to hinge forward. This provides access to the battery compartment for battery replacement or cleaning the fan area. Do not remove the lid. Lethal voltages are present inside the unit. Before attempting any operation in this area, turn off the APS, unplug the unit, open the hinge, disconnect the battery pack by pulling apart the battery connector, then press and hold the on/off button for 3 seconds to discharge stray voltages. Follow all instructions in the Purepower Battery replacement data sheet available on our website.

Specifications

This section provides the following specifications for the PurePower APS

- Electrical input and output
- Weights and dimensions
- Environmental and safety
- Battery

Model List

	VA/Watts	Weight Lb (Kg)	Dimensions (HxWxD)
PurePower APS Model 700	1000/700	34 (15)	3.5" x 17" x 19"
PurePower APS Model 1050	1500/1050	60 (27)	3.5" x 17" x 20"
PurePower APS Model 2000	2000/1400	80 (36)	5.25 x 17 x 22.5

Electrical Input

Nominal Voltage	100/110/120
Voltage Range	80 – 145V
Frequency Range	45-65Hz, 50/60 Hz auto-sensing
Noise filtering	MOVs & line filter for normal & common mode noise
Input Connections	700/1050 IEC-320 -cC3 15 amp Input connector 2000 IEC 320-C19 20 amp Input connector

Electrical Outputs

Output Voltage	100/110/120 (factory set)
Voltage Regulation	Nominal output voltage $\pm 2\%$
Voltage Waveform	Normal mode: Sine wave; $<3\%$ THD with full PFC
Output Receptacles	Hubbell Nema 5-15R
Energy Efficiency	89 - 92 % depending on load

Environmental and Safety

Operating Temperature	0°C to 32°C (32°F to 90°F)
Optimal battery performance:	21°C (72°F)
Storage Temperature	0°C to 25°C (32°F to 77°F)
Transit Temperature	-25°C to 55°C (-13°F to 131°F)
Relative Humidity	5-90% noncondensing
Operating Altitude	Up to 3,000 meters above sea level
Transit Altitude	Up to 10,000 meters above sea level
Audible Noise	Less than 17 dBA
Surge Suppression	ANSI C62.41 Category B (formerly IEEE 587)
Safety Conformance	cULus

Class B EMC Statement

FCC Part 15

Note: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 to the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation, in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Troubleshooting your PurePower APS

This section contains troubleshooting information and an explanation of APS alarm conditions.

Condition	Possible Cause	Resolution
The LED indicator lights are not on or APS won't start	Power cord not connected Wall outlet is faulty APS Fuse or breaker blown	Check connections Have outlet checked and repaired Clear Cause and Replace Fuse
Amber Fault LED illuminated	Receptacle ground wiring fault, Short circuit on output Internal fault	rewire receptacle Remove load, repair short Notify PurePower Service
Utility LED off, Battery mode indicated	Utility power failure APS is not connected to wall	none Check Input power cable
Bypass indicator is lit	APS in bypass mode Your components have been transferred to utility power. Power filtering and surge suppression are active.	Check LCD message for cause.
APS shuts down	Overload or over temp condition and Utility power bad Utility failure and batteries depleted	Reduce load, check for obstruction and fan operation APS will restart when utility returns
Battery % indicator low	Battery fully discharged	Allow batteries to charge for 24 hours then hold On/Off button for 1 secs. for self test.
	Battery failure	Replace the batteries or contact your dealer.
Internal temp over 65 degrees C.	Internal temp too high	Turn off and unplug APS, allow to cool. Check for blocked vents and that airflow is not restricted. If problem persists, contact your dealer.
Overload message, APS turns off output	Power demand exceeds APS overload capacity*	Turn off and unplug APS. Wait 5 seconds, restart APS. If problem persists, remove components from APS until wattage is within APS rating. Some amplifiers have very high power draws* on startup. A higher wattage APS may be required.
	Amplifier startup demands	

* The APS is capable of supporting up to 110% of its rated capacity for 2 minutes and up to 150% of its rated capacity for up to 30 seconds. Turn on multiple high power amps one unit at a time.

Service And Support

For setup and support for your PurePower APS, please contact your authorized PurePower Dealer.

For warranty service, please contact your authorized dealer or PurePower. All PurePower APS models have a two year warranty for original registered owners. If we are unable to solve a problem with your APS over the phone, we'll provide fast repair or replacement.

For technical support and warranty service, and full RMA instructions please contact PurePower via:

email: service@PurePowerAPS.com | phone at 519.624.9735 | fax at 888.336.4293

